

BEFORE THE
POSTAL REGULATORY COMMISSION
WASHINGTON, D.C. 20268-0001

PERIODIC REPORTING
(PROPOSALS EIGHT AND NINE)

Docket No. RM2012-8

PETITION OF THE UNITED STATES POSTAL SERVICE
FOR THE INITIATION OF A PROCEEDING TO CONSIDER PROPOSED
CHANGES IN ANALYTICAL PRINCIPLES (PROPOSALS EIGHT AND NINE)

Pursuant to 39 C.F.R. § 3050.11, the Postal Service requests that the Commission initiate a rulemaking proceeding to consider two proposals to change analytical principles relating to the Postal Service's periodic reports. The proposals, labeled Proposal Eight and Nine, are discussed in the attached text.

To allow for the incorporation of these proposals into the upcoming FY 2012 Annual Compliance Report, the Postal Service requests that the procedural schedule for this docket be structured such that a final order may be issued by December 1st. To facilitate such a schedule, the Postal Service analysts responsible for these proposals would be available for technical conferences or other communication with Commission staff.

Respectfully submitted,

UNITED STATES POSTAL SERVICE

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PROPOSAL EIGHT

Incorporation of the Lightweight Parcel Select Price Categories into the Parcel Select / Parcel Return Service Mail Processing Cost Model

Proposal:

The Postal Service proposes to modify the Parcel Select / Parcel Return Service mail processing cost model by incorporating the mail processing unit cost estimates for the Lightweight Parcel Select price categories. Specifically, the Postal Service proposes moving the machinable and irregular cost worksheets contained in the Standard Mail parcel mail processing cost model to the Parcel Select / Parcel Return Service mail processing cost model. In "Proposal8.xls," which is contained in library reference USPS-LR-RM2012-8/1, the worksheets have been relabeled "Lightweight Parcel Select."

The number of machinable and irregular price categories, as well as the presort level and destination entry point for each price category, have not changed as a result of the commercial Standard Mail parcel price categories being moved to the competitive products list. The proposed changes are therefore solely mechanical in nature; no methodological changes are being proposed.

Please note that the Parcel Select and Lightweight Parcel Select model cost estimates will be used to de-average the mail processing cost by shape estimate for all Parcel Select in the FY 2012 Annual Compliance Report.

Rationale:

On March 2, 2011, in Order No. 689, Docket No. MC2010-36, the Commission conditionally approved the transfer of the commercial Standard machinable and

irregular parcel price categories to the competitive product list as “Lightweight Parcel Select,” a subcategory of Parcel Select. The transfer became effective with the implementation of new prices in January 2012. Therefore, costs reported for FY 2012 should reflect the incorporation of Lightweight Parcel Select into Parcel Select.

Impact:

It is not possible to estimate the impact that these changes will have on the mail processing unit cost estimates for the Parcel Select and Lightweight Parcel Select price categories at this time. The data in “Proposal8.xls” are 2011 Parcel Select figures and those figures did not include Lightweight Parcel Select costs. In addition, it is not possible to use the results from the summary page of the model (page 1) to gauge the accuracy of the model.

PROPOSAL NINE

Modifications to First-Class Mail, Standard Mail, and Periodicals Flats Cost Models

The Postal Service proposes to make the following eight modifications to the Periodicals Flats model. The Postal Service proposes to apply the first, third, fifth, and sixth modifications to the First-Class Mail and Standard Mail Flats models as well. The modification numbers listed in this document correspond to the modification number listed in the “Modifications” worksheet of each model. The three models, with the proposed modifications incorporated (via toggle switches), are contained in library reference USPS-LR-RM2012-8/1.

Modification 1 – Remove “Switches” from Docket No. RM2012-2 Model

The model filed in Docket No. RM2012-2 contained a number of toggle switches to allow analysts to isolate any one of the then proposed changes. Now that those changes have been approved, the switches are superfluous. In the attached model, the “Switches” tab is renamed “FSS Parameters,” as the tab now contains calculations of FSS parameters.

Modification 2 – Correction of Summary Statistics

Due to inconsistencies in the structures of the tables with bundle volume and cost, the summary statistics of bundle costs and calculation of total bundle sorting costs on the “Bundle Cost CRA” tab were in error because of cell referencing errors. These errors occurred in the cells in columns Z – AE of the “Summary” tab and cells F7 – H14 of the “Bundle Cost CRA” tab. This modification corrects these errors.

Modification 3 – Enhanced reject flows

Prior versions of the flats models only explicitly modeled one of the several phenomena that cause piece processing failures on the AFSM 100, namely, pieces sent to the remote coding that could not be finalized. Processing failures can occur for a number of reasons and the inclusion of only Remote Encoding Center (REC) rejects understated the number of pieces needing additional handlings as measured by the ratio of MODS TPH to TPF. Modification 3 enhances the modeled flow of AFSM 100 rejects to improve the consistency with measured MODS statistics.

Since the introduction of the AFSM 100, modeled reject flows have been calculated as the proportion failing the BCR or OCR read times the rate that RECs cannot resolve the image. The BCR and OCR read rates are relatively high (94 percent for BCR reads and 74 percent for OCR reads) and the measured REC finalization rate is high (98 percent). As a result, this calculation yields a reject rate for pieces that fail both the BCR/OCR and REC processing of around 0.11 percent for barcoded pieces and 0.49 percent for non-barcoded pieces, depending on scheme. These reject rates are considerably lower than the reject rates measured using MODS ratios of TPH to TPF, which range between 3 and 4 percent; in the case of FSS processing, the TPH/TPF reject rate is much higher, exceeding 10 percent. The MODS TPH/TPF ratio is higher as it includes other sources of processing failures in addition to REC image, such as mechanical problems or the processing of out-of-scheme pieces.

Modification 3 makes AFSM 100 reject flows consistent with measured MODS TPH/TPF measures. In the case of FSS processing, out-of-scheme rejects are separately identified from in-scheme rejects. Out-of-scheme rejects are modeled to flow

from the FSS operation to IP processing on the AFSM 100. In-scheme rejects are modeled to flow to IS processing on the AFSM 100.

This modification requires the development of two additional parameters: (1) the proportion of FSS rejects that are out-of-scheme vs. all other FSS rejects; and (2) a measure of the proportion of flats at FSS equipped sites that are worked on the FSS. The FSS out-of scheme parameter is taken from MODS EOR reports. This parameter is needed to measure the flows of FSS reject mail to the AFSM 100 Incoming Primary (IP) operation and the flow of FSS rejects to the AFSM 100 Incoming Secondary (IS) operation. The out-of-scheme parameter is calculated in “538 TPF TPHv Redact.xls” file.¹ This file presents FSS total pieces fed (TPH), total piece handled (TPH) and the number of out-of-scheme rejects by FSS site.

The second parameter, the proportion of FSS site mail worked on the FSS, is needed to measure the flow of mail that is rejected from the FSS that flows to the AFSM 100 IP. Because sites are constrained by processing windows and machine capacity not all zones at FSS equipped sites are processed on the FSS some zones receive IS processing on the AFSM 100. Some of out-of-scheme-FSS-reject mail will flow back to the FSS in the appropriate scheme and some will flow to zones that receive IS processing on the AFSM 100. To measure this proportion the L006 Labeling list and Mail.dat PDR files are used. Excel file “FSS_Zone_Volume_Redact.xls” provides the Mail.dat and ODIS volumes by class and 3-Digit Zone used to measure the proportion of pieces destinating at FSS sites that also destinate in FSS zones.²

The L006 Labeling list identifies the 5-Digit zones that are processed on the FSS.

¹ This file is contained in library reference USPS-LR-RM2012-8/1.

² This file is contained in library reference USPS-LR-RM2012-8/1.

Mail.dat PDR (Piece Detail Records) files are used by some mailers to satisfy full service IMB reporting requirements. These files document the IMB of all pieces in a mailing and link each piece to container, bundle and other preparation statistics. This information can be used to determine whether or not a piece destines in an FSS zone simply by comparing the destination ZIP with the FSS ZIP codes in L006 labeling list. By class, pieces records in available PDR files are mapped to three categories, in FSS zone, at FSS site but not in FSS zone, not destinating at an FSS site. Unfortunately not all mailers use PDR files for IMB reporting. To mitigate bias that might result from differences in mailers using PDR files and the universe of mailers, the information in the PDR files is used as a distribution key for ODIS destinating volumes by 3-Digit zone³.

The model has not been modified to account for out-of-scheme reject processing in the OP, OS, MMP, SCF, IP, IS schemes though, undoubtedly mis-sorted mail also occurs in these schemes as well. Modification of the model to account for these flows would add considerable complexity to the model while improving the accuracy of the model very little. Relative to the FSS, AFSM 100 rejects are low, and out-of-scheme rejects are less likely in OP, OS, MMP, SCF, and IP operations because most facilities only have a single sort plan in these operations. Additional IP processing costs for FSS out-of-sort plan rejects is less than 0.07 cents per piece. Total rejects in AFSM 100 processing are around a third of FSS reject rates implying a much lower impact of any out-of-plan rejects on modeled costs.

³ A comparison of aggregate Mail.dat information suggests that any bias would be small. The distributions of pieces across 3-Digit zones are similar in the Mail.dat files and the ODIS data. In the ODIS data 38.8 percent of Periodicals flats destinate in a 3-Digit zone processed at an FSS equipped facility. In the Mail.dat PDR files 40.1 percent of Periodicals flats destinate in 3-Digit zones processed at FSS equipped facilities. The proportions for Standard and FCM are similar (Standard ODIS 44.4 – Standard Mail.dat 44.6, FCM ODIS 44.2-FCM Mail.dat 46.0). The effect of any bias is inconsequential on the relevant measured costs. Model sensitivity tests using parameter estimates from 80 percent to 30 percent yielded measured cost differences of less than 0.01 percent for most estimated costs.

Modification 4 – Improved Piece Allied Flows

The predecessor to the current Periodicals flats model, LR-I-332 (Docket No. R2000-1), was developed when flats incurred a much simpler flow. In 2000, the AFSM 100 had not been deployed and most IS processing was done at the delivery unit manually. Each facility typically processed the mail once and there was very little intra-facility flow of mail from scheme to scheme. The modeled flows mirrored this and allied flows simple with intra-facility flows largely ignored. The introduction of the AFSM 100 and FSS has changed this. Today most IS processing is conducted on mechanized equipment meaning that mail flowing from IP operations will typically incur some intra-facility allied activity. Modification 4 makes changes to the modeled allied flows to reflect operational realities.

In the Periodicals model, allied operations are represented by seven stylized activities: operation setup, operation breakdown, inter-operational movements, preparation of mail for transportation, transporting mail to outbound docks, loading the mail to transportation, and unloading mail at the destination facility. In Modification 4, the mail incurring any of these activities is identified including intra-facility allied operations. For pedagogical reasons allied activities are assigned to facility type based on the schemes they are associated with; OP and OS allied operations are assigned to OADC; MMP to OADC; SCF, IP, FSS and mechanized IS allied operations to DSCF; even though all schemes could theoretically be performed in a single facility. For clarity and transparency, additional sheets have been included to identify individual elements in the formulae.

Pieces incurring operation setup, represented in the model by “Get OWC”, is

generally measured by the inflow of mail to each operation; that is to say, each piece that flows into the operation must eventually leave the operation on some piece of transport equipment. Intra-facility movements, “Move OWC to piece distribution”, will include movement of rejects, and downflows to subsequent operations. Preparing tubs and trays for transportation and transportation to outbound dock is measured by mail flowing to MMP, SCF, and delivery units. Mail that flows directly from OP, OS, and MMP schemes directly to IP or IS operations is assumed to be occurring in the same facility and will not incur transportation preparation. Operation breakdown, “Empty OWC handling”, is measured by downflows and rejects. Measuring operation setup and breakdown separately provides a check as inflows to any operation should match the volume worked in the operation. Loading and unloading is measured by the downflow of mail to MMP, SCF and manual IS operations and mail finalized in mechanized IS operations. This general description of the allied operational accounting does not apply to mail flowing to IS operations where activity volume is sometimes calculated residually. This is because mail flowing from upstream schemes will not flow to operations at the DSCF. Some of this mail is transported directly to the DDU for manual IS distribution. Although complicated formulae can be constructed to account for these flows it is simpler to calculate them residually and reduce the chance of formulae error.

Modification 5 - Class specific FSS Coverage factors

The initial version of the flats models with FSS operations assumed that the distribution of mail across mail class being processed on the FSS was similar to the national distribution of mail across class. This assumption is not supported by operational practice or cost systems. Unit cost estimates from the CRA indicate that

First-Class Mail incurs lower FSS cost than either Standard or Periodicals. This difference is driven by service considerations and operational window limitations. Some facilities cannot efficiently structure FSS processing windows to be able to meet service standards for First-Class Mail. First-Class Mail at these facilities will be processed on the AFSM 100 or manually rather than be sequenced on the FSS.

Modification 5 generates uses cost estimates to distribute MODS TPF to class and then generates a class specific coverage factor as the ratio of distributed MODS FSS TPF to eligible RPW volume.

Modification 6 – Moving PO Box distribution to non-modeled

Flats models do not explicitly model the mail processing activity of distributing pieces to PO boxes. The cost of PO Box distribution is unlikely correlated with preparation characteristics, and even if it were, it is not possible to measure PO Box incidence across piece presort level. Prior to Docket No. RM2011-12, PO Box distribution at stations and branches was identified in LDC 44, but distribution at NONMODS offices was not separately identified. With the adoption of the Docket No. RM2011-12 methodology, it is now possible to isolate PO Box distribution costs. As these costs are not preparation dependent nor are they modeled, these costs are moved to “non-modeled”.

Modification 7 – Updating container cross-docking estimates

Transportation route information is used in conjunction with Periodicals Mail.dat information to develop updated estimates of the number of facilities a container passes through before it reaches the destination facility where it will be opened and the

contents distributed.

In Docket No. R2006-1 Time Warner used cross-docking estimates by container type, container level, and entry facility type provided by the Postal Service to develop a modeled cost of handling containers. These cross-docking estimates were developed using a national survey of facility transportation schemes and container entry and destination information from Periodicals Mail.dat files taken from the eVS system to produce national estimates of the number of facilities containers pass through before they reach the destination facility. This modification uses the same general methodology that was used in the development of the estimates used in Docket No. R2006-1 but uses transportation route data instead of survey data.

The Postal Service maintains a database of transportation routes that identifies the origin facility, destination facility, and destination ZIP codes of mail traveling on the route. This information is used to construct a matrix of entry facility and 3-Digit destination ZIP code which maps transportation flows through the Postal Services transportation network.

The transportation matrix is constructed using the most direct routing. The Postal Service's transportation network is not always a one-to-one mapping of destination ZIP to transportation route. Facilities may have multiple transportation options for mail depending on destination. Some of these routes are direct inter-SCF links; however direct links can be limited in capacity and frequency. Depending on when mail arrives at a facility, the facility's storage capacity, service standards, and other factors, a facility may choose to route mail through an intermediate facility such as an ADC or NDC rather than delay the mail in order to be able to transport it on the more

direct link. For any origin/destination (O/D) pair, it is not feasible to calculate the proportion of mail transported on each possible transportation link as the necessary information is not captured in any data system. Lacking this information, the most direct route is chosen for this analysis.

In the transportation routing data, rare O/D pairs are often not explicitly documented because there are destinations for which a particular facility rarely receives significant amount of mail. As a result, the complete transportation matrix cannot be constructed using routing information alone. The transportation matrix is completed using labeling lists and the following assumptions:

- Undocumented originating mail that destines in the service territory of the parent ADC is transported to the parent ADC, while all other undocumented originating mail is transported to the parent NDC.
- NDCs have direct transportation to SCFs in their service territory.
- ADCs have direct transportation to SCFs in their service territory

Once the transportation matrix is complete, every possible O/D pair is passed through the matrix and the number of unique facilities handling the container is summed until the container reaches the destination facility. The destination facility is defined by the facility identified by the MAILDIRECTIONv2 file, which lists the facility for destination SCF entry. The resulting file is then incorporated into the estimation process used to produce piece, bundle, and container estimates used to calibrate the Periodical mail processing cost model – the Periodicals Mail Characteristics Studies (MCS) documented in USPS-FY11-14, Docket No. ACR2011.

In brief, the MCS estimates are constructed using Periodicals postage statement

data by USPS publication number and Mail.dat files collected through the Postal One eVS system. Postage statement data is aggregated by USPS publication number by individual rate category. Publications are then stratified based on issue size, density (as measured by proportion of publications annual volume entered at carrier route or 5-Digit rates), drop shipping profile, and pallet use. Preparation and entry statistics from eVS Mail.dat files are then aggregated by publication number, weighted by publication annual volume and summed by strata. Strata are then weighted by postage statement volume to produce national estimates of preparation characteristics.

The estimation of the average number of facilities a container passes through prior to arriving at the destination facility is incorporated into this methodology by mapping the O/D pair for each container in the Mail.dat CSM file to the transportation file and extracting cross-dock information. Cross-dock information is weighted in the same manner as container, piece, and bundle information is weighted. Cross-dock estimates are produced by container type (sack, pallet), container presort level and entry facility type.

Cross-dock estimates are then smoothed by weighting estimates across container levels by entry facility type and container type. The smoothed distribution gives cross-dock estimates to the destination SCF. Containers at the 5-Digit/Carrier Route levels are assumed to receive one additional cross-dock to the delivery unit. Containers at the ADC and MADDC level are broken prior to the destination SCF. For these containers, the incremental cross-docks by entry facility type are used to generate smoothed estimates. Smoothed estimates are necessary as there are many sparsely populated cells; this is especially true with origin or destination NDC entry. Containers

currently entered in these sparsely populated cells for which Mail.dat information is available may not be representative of the universe and more importantly are not representative of the containers that could migrate to these cells. As an example, a large fraction of ONDC entered 5-Digit containers are entered in Phoenix and destinate in Salt Lake City. These two facilities have direct transportation links so these containers will pass through two facilities prior to arriving at the destination delivery unit. Prices based on unsmoothed estimates can distort incentives as containers that may migrate to ONDC entry are likely not to have similar direct transportation.

The final calculation and estimate smoothing of the cross docking statistics is presented in “Cross Stats.xls.”⁴ The table below shows the resulting estimates based on data from Quarter 1 FY 2012.

CONTAINER TYPE - Q1 FY12 SMOOTHED										
ENTRY	Entry	MADC	ADC	Sack Type				Pallet Type		
				SCF/3D	5-Digit	5-D CR	CR	ADC	SCF/3D	5-Digit
	OSCF	1.000	2.839	2.952	3.952	3.952	3.952	2.410	2.613	3.613
	OADC	0.000	2.611	2.724	3.724	3.724	3.724	1.982	2.185	3.185
	OBMC	1.000	1.843	1.956	2.956	2.956	2.956	1.585	1.788	2.788
	DBMC	1.000	1.000	1.113	2.113	2.113	2.113	1.000	1.203	2.203
	DADC			1.029	2.029	2.029	2.029		1.025	2.025
	DSCF				1.000	1.000	1.000			1.000

These estimates are generally similar to those provided in Docket No. R2006-1.

Modification 8 – Simplification of Modeled Container Handling Costs

Most general descriptions of the Postal Service’s facility structure define facilities as Sectional Center Facilities (SCF), Area Distribution Centers (ADC), Network Distribution Centers (NDC), and Associate Offices (AO)/Delivery Units (DU). In these descriptions, SCFs have regional responsibilities for sorting destinating mail to carriers for a small number of 3-Digit ZIP codes and distributing mail to AOs/DUs, which are the

⁴ This file is contained in library reference USPS-LR-RM2012-8/1.

smallest offices where individual route carriers receive mail and prepare mail for final distribution to customers. ADCs have a broader function that not only includes distribution to carrier of mail destinating in the 3-Digit zones for which the ADC has been given SCF responsibilities but also the tasks of distributing mail that destinales at SCFs in the ADC's service territory and distribution mail originating in the ADC's service territory to other network facilities. The primary task of NDCs is to distribute mail to SCFs and ADCs for final distribution to carrier and, as such, they tend to have the largest service territories.

General descriptions of the transportation flows between facilities usually flow outgoing mail from AOs to the parent SCF then to the ADC, which then sends mail to the NDC. If the mail destinales outside the NDC's service territory, the mail will be sent to the NDC charged with servicing the zone where the mail destinales. The destination NDC will then send the mail to the destination ADC, which in turn will send it to the destination SCF. Finally, the destination SCF transports the mail to the destination delivery unit. A generalized flow looks like:

Origin AO → Origin SCF → Origin ADC → Origin NDC → Destination NDC →
Destination ADC → Destination SCF → Destination DU

While these generalizations are useful for pedagogical purposes, actual transportation flows are more complex and difficult to express in simple flow diagrams. Many facilities have transportation links to multiple facilities. Most SCFs have direct links to their parent ADC and NDC but often will have direct links to SCFs within the parent ADC's service territory, hub and spoke facilities and even the occasional link to SCFs outside the service territory of the parent NDC.

In the development of their Periodicals Flats Mail Processing Cost Model in Docket No. R2006-1 Time Warner attempted flow of the average number of cross-docks a container incurs through the pedagogical description of the Postal Service's transportation network using a combination of assumptions. The result is a set of numbers that are overly complex in their derivation but neither particularly informative nor necessary.

To provide reasonably accurate estimates of mail processing costs associated with container movements, only the number of cross-docks is needed. This is because, while the transportation network may be complex, the mail processing activities incurred by containers are relatively simple and generally homogeneous across facilities. Typically, cross-docking a pallet involves unloading the pallet using a forklift or pallet jack from the inbound train, moving the pallet to the staging area for the appropriate outbound transportation, the loading the pallet with a fork-lift or pallet jack. Sacks are only slightly more involved. Sacks typically arrive loose in rolling stock. The rolling stock is typically taken to a bullpen operation or sawtooth where the sacks are sorted into rolling stock for the appropriate destination and the rolling stock is then loaded onto outbound transportation.

In the past 10-15 years, there has been a tremendous reduction in the number of sacks due, in part, to pricing incentives, preparation rule changes encouraging the use of pallets, and co-palletization, but also because sacks are cumbersome and inefficient relative to pallets for both the Postal Service and customers. The reduction in sack usage paired with the increase in drop shipping has led to the reduction or elimination of mechanized sack operations at most facilities including NDCs.

Modification 8 simplifies the calculation of container costs by recognizing that, in the context of such models, the facility type is not a relevant factor, as it is not practical to develop separate productivities for each facility type. This eliminates the need to develop complicated schemas to impute the flow through each facility type. As in the previous method, the costs of a set of generalized processes are calculated:

- Containers entered and worked within the same plant
- Container cross-docked at entry plant
- Container entered upstream and cross-docked at a plant
- Container entered upstream and worked at destination plant
- Container entered upstream and worked at destination delivery unit
- Container entered and worked at the destination delivery unit.

By simply having the number of facilities that a container passes through before it reaches the destination facility, as provided in Modification 7, the number of times the average container incurs each process can be calculated. For example, the average container OADC entered SCF passes through 2.164 facilities before it reaches the destination SCF. The first facility passed through is the facility of origin. This implies that the container incurs 1.164 facility cross-docks before it reached the destination facility where it will be worked. For each process, the value corresponding to the number of times the container incurs the cost is provided in the block to the right of the “Cost Descriptions” in the previous model. The calculation of each container cost is performed using a simple “SUMPRODUCT” formula.